



# Hemlock Woolly Adelgid *Adelges Tsugae*



## Importance of Eastern Hemlock *Tsuga canadensis*

Hemlock is shade tolerant, long lived, has a shallow root system and can live in a forested understory for 25 years or more. In Michigan, more than 170 million hemlock trees are growing in landscapes, forests and areas along streams or rivers.

Hemlock trees provides critical winter cover, food and habitat for several bird and mammal species. Loss of hemlock will: Alter soil temperatures, nitrogen cycling and decomposition rates impacting forest structure, allow for increased erosion/reduced water quality/increased water temperatures altering communities of aquatic organisms.

## Hemlock woolly adelgid *Adelges tsugae*

Adult adelgids injure the tree by piercing the bark of twigs and sucking out nutrients. Introduced from Japan , it was first identified in the 1920's in western states. Since it was discovered in 1951 in Virginia, this pest has been spreading across much of the range of eastern hemlock (*Tsuga canadensis*). It has killed hundreds of thousands of hemlock trees in eastern states. Infested trees usually die within 4 – 10 years. Although hemlock woolly adelgids cannot fly, life stages can be blown by the wind or transported on birds, animals or even on clothing. Long-range spread of HWA occurs when people transport and plant infested hemlock nursery trees into new areas.

## Hemlock woolly adelgid Tree injury and symptoms

- Lives off twigs
- Needles turn greyish green
- No buds
- Needle drop
- Low vigor
- Four-year mortality



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## Treatment options

Lada 2F (imidachloprid) – Applied as a soil drench or basal application – Slow acting, Persists for 3–5 years in the tree.

Tristar 8.5SL (acetamiprid) – Applied as trunk injection or basal spray – Fast acting and persistent, can be tank mixed with Lada for basal bark spray. We are still testing to see how long it will persist in conifer trees.

Use Kinetic organosilicone surfactant with basal bark applications to help penetrate the bark.

When applying insecticides, take precautions to avoid environmental contamination or effects on nontarget insects. Hemlocks often grow near streams or rivers, and insecticides applied to the soil could potentially move into waterways. Always read and follow the label.

## Other considerations

Maintain hemlock health In addition to protecting valuable trees from HWA infestation, you can take steps to maintain the health of hemlocks in your landscape. Avoid compacting the soil around hemlocks, and be careful with snowplows, weed whips or lawn mowers, which can wound trees. Young hemlocks may benefit from irrigation during dry spells. Do not fertilize trees that are infested with HWA. Like other sap-feeding insects, the adelgids produce more offspring when fertilization increases nitrogen levels in the tree. Be sure that you do not contribute to the spread of HWA in Michigan by transporting infested trees, limbs or other material into new areas. If you live in or near areas that are known to have HWA infestations, be aware of regulations that affect hemlock transport and disposal.

